



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

R. WOLTERS

Serial No. 60/276868

Filed: March 19, 2001

For: MOSAIC FILTER MULTI-SPECTRAL IMAGING

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Please amend this application as follows:

In the claims:

Please add the following claims:

1. (New). A device, comprising:

a plurality of binned pixels, each of said binned pixels comprising an array of single pixels;

a plurality of mosaics of filters, each mosaic of filters masking at least a portion of a corresponding binned pixel, and each of said filters in each of said mosaics masking a single pixel;

wherein each of said filters transmits light of at least one selected frequency band to a corresponding single pixel;

wherein at least one of such filters in each of said mosaics has a spectral resolution of approximately at most 20 nanometers centered around at least one desired transmission wavelength;

wherein said desired transmission wavelengths are selected to coincide with peaks in spectral signatures whose maxima correlate to those of specific compounds; whereby said binned pixels provide spatial resolution in an image; and whereby said mosaics of filters and said binned pixels provide spectral resolution in an image.

2. (New). A device according to claim 1, wherein said filters constitute uniformly spaced, equally sized nanometer spheres, wherein adjacent nanometer spheres are spaced apart from each other by a uniform distance of approximately half of said desired transmission wavelength.

3. (New). A device according to claim 1, wherein said single pixels are approximately 5 micrometers.

4. (New). A device according to claim 1, wherein each of said binned pixels consists of an array of 3x3 single pixels.

5. (New). A device according to claim 1, wherein each of said mosaics of filters contains a filter transmitting 390 nm, with a resolution of at most approximately 20 nanometers.

6. (New). A device according to claim 1, wherein each of said mosaics of filters contains a filter transmitting 410 nm, with a resolution of at most approximately 20 nanometers.

7. (New). A device according to claim 1, wherein each of said mosaics of filters contains a filter transmitting 545 nm, with a resolution of at most approximately 20 nanometers.

8. (New). A device according to claim 1, wherein each of said mosaics of filters contains a filter transmitting 580 nm, with a resolution of at most approximately 20 nanometers.

9. (New). A device according to claim 1, wherein each of said mosaics of filters contains a filter transmitting 635 nm, with a resolution of at most approximately 20 nanometers.

10. (New). A device, comprising:

a plurality of binned pixels, each of said binned pixels comprising a 3x3 array of single pixels;

a plurality of mosaics of filters, each mosaic masking a corresponding binned pixel, and each of said filters masking a single pixel;

wherein each of said filters transmits light of at least one selected frequency band to a corresponding single pixel;

wherein said selected frequency band for one of such filters in each of said mosaics is 390 nanometers, plus or minus approximately 10 nanometers;

wherein said selected frequency band for one of such filters in each of said mosaics is 410 nanometers, plus or minus approximately 10 nanometers;

wherein said selected frequency band for one of such filters in each of said mosaics is 545 nanometers, plus or minus approximately 10 nanometers;

wherein said selected frequency band for one of such filters in each of said mosaics is 580 nanometers, plus or minus approximately 10 nanometers;

wherein said selected frequency band for one of such filters in each of said mosaics is 635 nanometers, plus or minus approximately 10 nanometers;

whereby said binned pixels provide spatial resolution in an image; and

whereby said mosaics of filters and said binned pixels provide spectral resolution in an image.

11. (New). A process for using a solid state detector chip having a plurality of single pixels, comprising:

binning said single pixels to define a plurality of binned pixels, each of said binned pixels consisting of an array of single pixels;

filtering light transmitted to at least a single pixel in each of said binned pixels, whereby filtered light of a desired transmission wavelength, plus or minus approximately 10 nanometers, is transmitted to said single pixel in each of said binned pixels;

wherein said desired transmission wavelength is selected to coincide with a peak in a spectral signature of a specific compound;

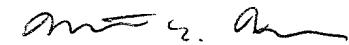
combining said binned pixels to provide spatial resolution in an image; and detecting said specific compound in said image from said filtered light.

REMARKS

This is a preliminary amendment filed with a petition to convert provisional application 60/276,868 filed March 19, 2001, to a nonprovisional application pursuant to 37 C.F.R. 1.52 (c) (3).

It is submitted that the application is now in condition for allowance, and an early action to that effect is earnestly solicited.

Respectfully submitted,



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